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File Code: 3420 **Date:** July 22, 2007
Route To:

Subject: Sawfly defoliation on the Black Mesa Ranger District

To: Forest Supervisor, Apache-Sitgreaves National Forests

On July 16, 2007, the ponderosa pine, east of Heber, AZ, were field checked for sawfly damage with Gayle Richardson of the Black Mesa district office. Defoliation was noted bordering Hwy. 260 to the north of the road from Heber to Pinedale. Open grown ponderosa pine, many of those surviving the Rodeo-Chediski fire, were moderately to heavily defoliated. While the larvae were no longer present on the trees at this time, evidence of heavy feeding was present on many trees. A previous visit by State Lands Department employee, Bob Celaya yielded larval photos that were identified by Mike Wagner of NAU Forestry as *Neodiprion ventralis*. I saw no current tree mortality, however, the possibility exists that previously fire and drought stressed trees, especially smaller trees, will succumb to the impact of this defoliation. Additionally, defoliated trees can be more susceptible to bark beetle attack.

There are 5 species of sawflies attacking ponderosa pine in Arizona; however, outbreaks are rare and localized. Furniss and Carolin (1977) indicate that the 16 species of *Neodiprion* found in the west are similar in habits and appearance. *Neodiprion ventralis* is a little known and rarely studied species but the biology and presumably the host preference is similar to other species of *Neodiprion* studied in Arizona. Sawflies generally have one generation per year. They feed in the caterpillar stage and have pupated in the duff under the trees at this time of year. Often we see chronic infestations of sawflies on individual or a group of trees that occur for several years with little damage to the infested trees. However, we have seen outbreaks of many usually endemic insects with the extended drought we are experiencing in the southwest. Hodges and Lorio (1975) found that water stress due to extended drought is often associated with insect outbreaks. Results from a 1987 experiment led Tisdale and Wagner (1991) to conclude that sawfly females were able to distinguish between stressed and non-stressed hosts and that egg survival was greatest on stressed hosts.

While trees experience growth loss and sometimes mortality from heavy or repeated defoliation, Miller and Wagner (1989) observed almost no difference between heavily defoliated adult ponderosa pine and non-defoliated trees after several years of recovery. Outbreaks of *Neodiprion spp.* sawflies cause spectacular defoliation for a year or two; however, they subside abruptly due to natural causes (Furniss and Carolin, 1977).

The defoliation east of Heber is quite spectacular with some trees being completely stripped. No current mortality was found in the defoliated stands and the likelihood is that minimal mortality will occur this year. Another year of heavy defoliation could increase the mortality slightly.

Unless heavy defoliation is occurring on multiple years in administrative sites, no treatment of this outbreak is warranted. Homeowners might be advised to water trees during dry spells to make them less susceptible to attack by sawflies.

If you have any questions, please feel free to contact Bobbe Fitzgibbon at 928-556-2072 or bfitzgibbon@fs.fed.us.

/s/ Roberta Fitzgibbon
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